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How Multiple Organizational Changes Shape Managerial Support for Innovative Work Behavior: Evidence From the Australian Public Service

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Abstract

Public organizations were once seen as the epitome of stability and implacability. More recently, however, public organizations have been subject to fast-paced environmental change. One common response to the challenges posed by these volatile environments has been the adoption of various organizational changes to make public organizations more adaptable. However, following threat-rigidity theory, this study argues that as employees perceive multiple organizational changes, managerial support for innovative work behavior (IWB) of employees decreases. Analyses on the Australian Public Service (APS) employee census support these assertions. Our results contribute to the literatures on work behavior, organizational innovation, and human resources management, by demonstrating that multiple organizational changes negatively affect managerial support for IWB of individual employees, which may—through their negative impact on individual-level innovations—ultimately affect the very adaptability of organizations that many changes aspire to achieve.

Keywords

multiple organizational changes, innovative work behavior, Australian Public Service

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Introduction

For decades, the general conception of governmental organizations has been centered around their stability and bureaucratic nature. However, from the 1980s and 1990s onward, both governments and scholars have begun to acknowledge that most public organizations are confronted with substantial environmental turbulence (Kuipers et al., 2014; Pollitt & Bouckaert, 2017; Valle, 1999). Ongoing processes such as technological advances, demographic changes, and globalization, as well as short-term shocks resulting from crises, force the public sector to continuously adapt (Lewis, 2004; Valle, 1999; Vann, 2004). As a result, there is a strong incentive for governments to impose reforms on their administrations, as well as a necessity for public organizations themselves to adapt to changing circumstances, legal frameworks, and political preferences.

The relation between processes of change in the public sector and subsequent innovative behaviors is puzzling. On one hand, a long line of thought in the organizational change literature has pointed at structural changes as drivers of more flexible, entrepreneurial, adaptive, and ultimately more innovative organizations (Burns & Stalker, 1961; Kanter, 1984). On the other hand, a psychological literature on organizational responses to change suggests that rapid change might hamper organizational innovation. Threat-rigidity theory posits that organizational climates become more top-down, nonparticipatory, and rigid in response to the stress and uncertainty caused by organizational changes. As a result, novel initiatives that are out of line with central policies and that may generate further uncertainty are discouraged (Olsen & Sexton, 2009; Staw, Sandelands, & Dutton, 1981). Paradoxically then, while organizational changes are often perceived as opportunities to make organizations more flexible and innovative, they might also be seen as threats that provoke stress, uncertainty, and actually lead to less innovation.

The question then becomes under which conditions organizational changes benefit or hamper innovation. This study focuses on the accumulated impact of *multiple* organizational changes that occur *within a short time frame* on managerial support for innovative work behavior (IWB) of individual employees. IWB relates to “the development, adoption and implementation of new ideas for products, technologies and work methods by employees” (Yuan & Woodman, 2010, p. 323). Following threat-rigidity theory, we examine whether multiple organizational changes bring about unintended effects that cause the organization to become rigid and top-down, particularly in the first year after implementation. This may result in a reduced level of managerial support for IWB, a factor which is considered important in creating a responsive, adaptive, and effective organization (Bos-Nehles, Bondarouk, & Nijenhuis, 2017; Yuan & Woodman, 2010).

This article seeks to contribute in several ways to existing literatures on work behavior, organizational innovation, and human resources management (HRM). First, this study examines the impact of multiple organizational changes that occur within relatively short timeframes. Scholars have focused on the change construct in various ways, often distinguishing between opportunity aspects of change and threat aspects

of change (Jackson & Dutton, 1988). This study takes a novel perspective by focusing on variances in the *multiplicity* of change, arguing that changes—whether ultimately producing objectively good (i.e., opportunities) or poor (i.e., threats) outcomes—increase uncertainty and stress at managerial levels in the short term. Previous work established the crucial role of management in supporting innovation of individual employees (Bos-Nehles et al., 2017; Yuan & Woodman, 2010), yet less is known about what determines variations in such managerial support.

This study examines whether managerial support is hampered in a context of threat, stress, and uncertainty, and takes a broad view of organizational change, allowing for the simultaneous occurrence of various types of structural, process, and personnel changes. Given that public organizations are confronted with increasingly rapid change processes, and that one type of change often coincides with or begets another (i.e., a merger spurring personnel reductions and location change), it seems imperative to study the effects of contemporaneous occurrence of multiple organizational changes (McMurray, 2007; Pollitt, 2007). It is therefore surprising that only a small number of studies have investigated the effects of such exposure to multiple changes (Moore, Grunberg, & Greenberg, 2004; Rafferty & Griffin, 2006; Rafferty & Restubog, 2017; Wynen, Verhoest, & Kleizen, 2017). Given this lacuna in the literature, our results hold important implication for the management of change in public sector organizations, in particular when multiple change processes coincide.

Second, this study examines the relationship between multiple organizational changes and managerial support for IWB, a subject which has been underresearched, yet which is of relevance in times where shifting environments increasingly require adaptive and innovative capabilities from public organizations (Valle, 1999; Voorberg, Bekkers, & Tummers, 2015). During the last decades, a variety of civil service reforms under the banner of new public management stressed that reforming public HRM is crucial for enhancing efficiency and effectiveness (Battaglio & Condrey, 2006; Llorens & Battaglio, 2010). The foundation of all innovative improvement is ideas, which are ultimately developed, carried, reacted to, and modified by individual employees (Bysted & Hansen, 2015; Scott & Bruce, 1994). Therefore, exploring the relationship between organizational changes and managerial support for IWB merits attention, as it sheds light on an important antecedent of organization-wide innovation and adaptability (Bos-Nehles et al., 2017). Furthermore, IWB is widely argued to be positively related to a series of positive outcomes at the organizational level, such as effective functioning and the long-term survival of organizations (Bysted & Hansen, 2015; De Jong & Den Hartog, 2010; Yuan & Woodman, 2010).

Finally, the study contributes to the core literature on IWB, which is usually conceptualized as a multistage process (Scott & Bruce, 1994; Yidong & Xinxin, 2013). Most studies have focused on the first stage of employee creativity and the generation of creative ideas, that is, the early phases of the innovation process (De Jong & Den Hartog, 2010). Far less is known about factors that influence the next stages where novel ideas are implemented (or not) (Bos-Nehles et al., 2017; Mumford, 2003). This study conceptualizes IWB by looking at the managerial support for novel ideas by employees and tests how this support is affected by multiple organizational changes.

We test the impact of multiple organizational changes on managerial support for IWB by running simulation analyses on the Australian Public Service (APS) employee census of 2014. The next section discusses the conceptualization of managerial support for IWB used in this article, before turning to threat-rigidity theory and its dynamics when organizational change is frequent. “Data” section presents the data utilized in this article, after which “Method and Results” section reports the results of analyses. “Discussion” section subsequently provides a discussion based on these results, after which “Conclusion” section ends with several conclusions.

Theoretical Framework

Managerial Support for IWB

The importance of innovation for organizational effectiveness and long-term survival is widely accepted (Damanpour & Schneider, 2009; Yuan & Woodman, 2010). Simultaneously, public sector innovation is in many ways a conundrum, as under most circumstances, market incentives for taking the risk of engaging in innovation are lacking (Potts & Kastle, 2010). Moreover, in accordance with many of the principles that guide and circumscribe public action, such as legal certainty, legitimate expectations, and the principle of equality, a public organization will be relatively likely to engage in standardized and predictable behavior, often eschewing the risks of initiatives that may fail or would benefit one group over another (Borins, 2001). Despite these hurdles, public sector innovation does occur and is often even necessary (Borins, 2001; Potts & Kastle, 2010). It allows public organizations to more efficiently deliver services (Borins, 2001), expand upon their range of services (Potts & Kastle, 2010), and adapt to changing environments that cause crises and organizational downturns (Borins, 2001). To that end, even if some degree of rhetoric is likely involved (Osborne & Brown, 2011), workplaces conducive to innovativeness have become highly sought after by public agencies (APSC, 2014).

An extensive literature has been produced on the definitions, types, antecedents, and outcomes of public sector innovation (see De Vries, Bekkers, & Tummers, 2015; De Vries, Tummers, & Bekkers, 2018). While a surprising majority of studies remains silent about their definition of innovation (De Vries et al., 2015), the most cited description of innovation has been given by Rogers (2003): “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (p. 12). Review articles have distinguished innovation studies in terms of the level of analysis of the antecedents of public sector innovation (De Vries et al., 2015; De Vries et al., 2018), which can be at the level of (a) the external environment (e.g., Borins, 2001), (b) the organization (e.g., Damanpour, 1991; Walker, 2006), (c) the innovation (e.g., Carter & Bélanger, 2005; Damanpour & Schneider, 2009), or (d) the individual employee (Borins, 2001). However, the level at which innovation itself occurs is rarely explicated, a problem that is linked to the often-perceived lack of proper conceptualization of public sector innovation (De Vries et al., 2015). Public sector innovation studies have focused on innovation at the policy level (Osborne & Brown, 2011),

organization level (Walker, 2006), program level, and project level (Borins, 2001). Yet, scant research exists on individuals' innovative behavior in public organizations (Bysted & Hansen, 2015).

This study examines innovation at the level of individual employees. *Employee IWB* refers to "the development, adoption and implementation of new ideas for products, technologies and work methods by employees" (Yuan & Woodman, 2010, p. 323). This focus recognizes the crucial importance of individuals for organizational innovation. Both the origin and the consumption of innovation rest with individual employees, making them highly significant for the adaptability and flexibility of organizational processes and outcomes (Bos-Nehles et al., 2017; Bysted & Hansen, 2015).

Not unlike the broader literature on public sector innovation (De Vries et al., 2018), IWB scholars see innovation as a process that consists of the distinct but related stages of idea generation, idea promotion, and idea realization (Scott & Bruce, 1994; Yidong & Xinxin, 2013). This phased approach allows to make explicit the pathway from individual idea generation toward the implementation of ideas and, ultimately, more innovative and adaptive organizations. The process-oriented focus also distinguishes innovative behavior from creative behavior, which refers more narrowly to behavior that contributes to the generation of novel and useful ideas (Yidong & Xinxin, 2013).

As mentioned, studies on IWB in the public sector are scarce. Bysted and Hansen (2015) examine the role of sector differences (comparing public sector with private sector employees), job characteristics (autonomy and expectancy clarity), and organizational characteristics (risk culture). Verhoest, Verschuere, and Bouckaert (2007) found innovative behavior by public managers was affected by political pressures resulting from threats to organizations' perceived legitimacy. However, while these studies show institutional factors motivate bureaucrats toward innovation, they offer little specification about how innovative behavior develops.

This study focuses on an internal factor to shed light on this process. Studies on private sector cases illuminated the role of internal factors such as the relation between employees and their supervisors (e.g., Damanpour & Schneider, 2009), leadership style (e.g., Jung et al., 2008), workplace interactions (e.g., Radaelli, Lettieri, Mura, & Spiller, 2014), and individual psychological factors (e.g., Scott & Bruce, 1994). Yet, the relevance of these factors has not yet been statistically tested in a public sector context. Furthermore, most IWB studies have focused on the first stage of idea generation, which relates to the production of novel and useful ideas in any domain (De Jong & Den Hartog, 2010). Far less is known about the next stages of idea promotion and realization, which consist of efforts at finding allies and support to eventually implement the idea (Bos-Nehles et al., 2017; Mumford, 2003). When employees come up with novel ideas that concern work-related problems, they require support to implement the ideas via idea promotion (Van der Vegt & Janssen, 2003).

This study focuses on the second stage of finding allies for novel ideas, by focusing on a crucial source of support: managerial support. Private sector scholars have argued the supervisor role in promoting IWB is difficult to overrate (Yuan & Woodman, 2010). In a nutshell, leader-member exchange theory argues "employees with 'high-quality' relationships with their supervisor are given greater resources,

more decision-making abilities, and freedom in return for high loyalty and commitment” (Bos-Nehles et al., 2017, p. 383). Studies show that employees engage more in IWB, as managers are supportive, psychologically empowering, and well-communicative (James et al., 2008). Evidence suggests that this observation holds in the public sector as well (Damanpour & Schneider, 2009). A recent review study demonstrates the crucial role of organizational climate for public sector innovation (Cinar, Trott, & Simms, 2019). In these studies, however, IWB is seen as a variable explaining innovation at higher levels (Bysted & Hansen, 2015). A notable exception is the study by Bos-Nehles et al. (2017) that explores the role of supervisors in supporting IWB in case study of the Dutch Fire Services. Given the crucial role of managerial support for IWB, the current study seeks to advance our understanding of how such support is potentially hampered in a context of threat, stress, and uncertainty.

The Relation Between Organizational Change and IWB

The relation between organizational changes and innovative behaviors has puzzled practitioners and scholars for decades. In the organizational change literature, a long line of thought has argued that innovative behavior is crucially affected by an organization’s structure. Burns and Stalker (1961) distinguish between mechanistic systems (specialized differentiation of tasks, hierarchical control structure, vertical interaction) and organic systems (continual re-definition of tasks, network structure of control, horizontal interaction), and state that organic systems are better suited to deal with changing conditions and uncertain environments. In a similar vein, Kanter (1984) argues integrative structures favor team-oriented cooperation (which stimulates innovation), whereas segmentalist structures favor specialization and independent functioning (which stifle innovation). Organizational change, then, contributes to IWB if it brings organizational structure, processes, or culture in line with what is needed to embrace change and innovation.

Simultaneously, psychological insights point at the potentially negative effects of organizational change. Research indicates the potentially harmful effects of organizational changes on the well-being and job satisfaction of individual employees as a result of the increase in stress and uncertainty that such changes bring about (Daly, Der-Martirosian, Ong-Dean, Park, & Wishard-Guerra, 2011; Staw et al., 1981). More specifically related to innovation, stress and uncertainty have been argued to increase cognitive inflexibility within individuals and reduce creativity (Bommer & Jalajas, 1999).

Although these insights seem contradictory, they actually point at a common psychological mechanism that applies to individuals when they make sense of an organizational change. People respond to issues in their environment by identifying such issues as either threats or opportunities (Jackson & Dutton, 1988). Issues that are negative, uncontrollable, and potentially result in loss lead to threat-consistent behaviors (Staw et al., 1981), whereas positive, controllable, and potential gain issues provoke opportunity-consistent behaviors (Nutt, 1984). The “pessimistic” perspective builds on the potential uncertainty and stress that accompanies changes

that are perceived as threats. On the contrary, the “optimistic” perspective is consistent with organizational structures, processes, and cultures that create the conditions for seeing changes as opportunities.

The question then becomes, “What makes individuals perceive organizational changes as threats, and pose the subsequent threat-consistent behaviors?” This study contributes to the existing body of knowledge that highlights the role of control, emotions (positive/negative), and expected effects (Jackson & Dutton, 1988). Our core argument is that these antecedents are reinforced when *multiple* organizational changes are imposed on *government organizations* in a *short and recent time frame*; that is, organizational changes are more likely to lead to threat-consistent behavior (i.e., less managerial support for IWB) when they accumulate in the previous year, particularly in a public sector context that has been heavily reformed over the years by external actors (decreasing organizational control over the content and implementation of these changes). We assume that organizational changes are more ambiguous, uncertain, and likely to be perceived as threats in the first year after their implementation, as the potential effects on the work practices and well-being of employees are still unclear. We also assume that these negative effects will accumulate as more changes are experienced by employees.

In the next segments, we first describe the general theoretical framework, as developed in threat-rigidity theory, after which we relate the insights of this line of scholarship to our context of multiple organizational changes and managerial support for IWB.

Threat-Rigidity Theory

Threat-rigidity theory offers a comprehensive framework to get an insight into the effect of organizational changes on managerial support for IWB (Niesen, De Witte, & Battistelli, 2014). The theory was developed by organizational psychologists Staw et al. (1981) to explain how threatened organizations and their employees respond to stressors beyond their control. They argue threatening events may result in a number of effects on various levels within the organization. First, they state events perceived as threatening lead to uncertainty, stress, and anxiety (Niesen et al., 2014). This certainly holds for not only managers, who are tasked with guiding the organization through threatening events, but also for employees at lower levels within the organization, who feel that their own position, future prospects, or the organization’s well-being may be adversely affected by the threat (Bordia, Hunt, Paulsen, Tourish, & DiFonzo, 2004; Kuipers et al., 2014). Second, a threatening event induces a perception of urgency, especially within decision-makers within the organizations, who feel they have to avert or mitigate the threat as soon as possible (Plotnick & Turoff, 2010). Together, these effects may produce a rigidity response with a variety of consequences for the flexibility of organizations (Olsen & Sexton, 2009).

Two of the more prevalently mentioned predictions of threat-rigidity theory are a centralization of control by the organization’s management (Plotnick & Turoff, 2010) and an increase in the level of formalization throughout the organization

(Amabile & Conti, 1999; D'Aunno & Sutton, 1992; Muurlink, Wilkinson, Peetz, & Townsend, 2012). Managers faced with one or more threats in the environment are required to assess their (potential) effects on the organization and to revise the organization's internal structure to accommodate for the change. As timeframes for implementing an organizational change are often short, these assessments usually must be made with at least some degree of urgency and uncertainty, inducing a tendency for managers to centralize control in small groups to quickly and decisively address the threatening event (D'Aunno & Sutton, 1992; Muurlink et al., 2012; Staw et al., 1981). Such uncertainty simultaneously provides an impetus for managers to introduce increased levels of formalized procedures and sanctioning for deviant behavior (Olsen & Sexton, 2009; Staw et al., 1981). At the subordinate level, this may simultaneously lead to reduced initiatives to participate or speak up, as providing input is viewed as discouraged, futile, or even likely to incur sanctions (Morrison & Milliken, 2000; Olsen & Sexton, 2009).

Stress and uncertainty have simultaneously been argued to increase cognitive inflexibility within individuals, irrespective of their position within the organization (Daly et al., 2011; Muurlink et al., 2012; Niesen et al., 2014; Staw et al., 1981). Given the uncertainty and urgency that accompanies the implementation of organizational change, management may tend to overemphasize knowledge of solutions that have worked in the past (Daly et al., 2011). This may lead to the creation of decision-making in-groups during threatening events, which provide an opportunity for managers to simplify the information and problem confronting the organization (Niesen et al., 2014; Olsen & Sexton, 2009). This may lead to groupthink, a state in which the attention to and tolerance of information from beyond the in-group decreases, while pressure toward conformity with the prevailing opinion increases (Olsen & Sexton, 2009; Plotnick & Turoff, 2010). Thus, through the threat-rigidity effect, a variety of effects occur that make decision-making more centralized and increase the level of formalization, while simultaneously reducing the openness of decision-makers to alternative information and peripheral cues (Niesen et al., 2014; Plotnick & Turoff, 2010; Staw et al., 1981).

Threat-Rigidity Effects in a Context of Multiple Organizational Changes

Defining a threat as "an environmental event that has impending negative or harmful consequences for the entity," Staw et al. (1981, p. 502) allow for a variety of stressors to produce threat-rigidity effects, including organizational change (Daly et al., 2011). Some changes, such as a decrease in staffing numbers, directly induce perceptions of adverse effects to the individual position of employees. Organizational changes may also generate perceptions of adverse consequences somewhat more indirectly, with changes in the symbols of the organizations, for instance, disrupting valued aspects of the organizational identity (Ravasi & Schultz, 2006; Vann, 2004). Even organizational changes that may at face value be positive for the organization, such as expansions in the organization's competences, may generate perceptions of adverse effects and threat, as individual employees face the stress

caused by increased workloads and adaptation costs, while managers face the responsibility of the new task's smooth implementation (Daly et al., 2011; Mack, Nelson, & Quick, 1998).

We expect that threat-rigidity effects will be negatively related to managerial support for IWB. Contingency theory states that the adoption of novel ideas in organizations is related to a low extent of formalization and less rigid formal controls, job descriptions, and regulations (Perrow, 1967). As organizations become more centralized and formalized, the opportunities of rank-and-file employees to participate in project- or organization-level decision-making will be reduced (Staw et al., 1981). Simultaneously, organizational efforts to formalize procedures reduce the support for new and creative ideas (Bordia et al., 2004; Bos-Nehles et al., 2017), and lead to less risk-taking at the individual level (Amabile & Conti, 1999). As following top-down formal procedures is emphasized in the organization and deviant behavior is sanctioned (Olsen & Sexton, 2009), the freedom of employees to act creatively is negatively affected.

A core interest of this article is to analyze the impact of *multiple* organizational changes within relatively short timeframes on managerial support for IWB. Two contradictory theories have been formulated concerning the effect of repeated stressors. On one hand, the stress-accumulation model posits that an accumulation of stress and uncertainty negatively affects individuals' coping resources, ultimately weakening the individual (Moore et al., 2004). On the other hand, the resilience model states that individuals who have experienced substantial stressors are strengthened by these experiences and better prepared to face subsequent incidents (Dougall, Herberman, Delahanty, Inslicht, & Baum, 2000).

Evidence for both models is mixed and seems to point at the relevance of contextual factors. Douglas et al. (2000) argue the resilience model has validity in contexts of repeated but similar stressors, while the stress-accumulation model better captures situations of varied types of stressors. Moore et al. (2004) find support for a stress-accumulation model as employees come into contact with multiple downsizing events. The study by Wynen et al. (2017) finds evidence for a negative impact of sequences of structural reforms on innovation. Similarly, Kleizen, Verhoest, and Wynen (2018) find an impact of repeated structural reforms on perceived autonomy. Moreover, qualitative accounts of organizational change in settings such as the English National Health Service (NHS) also suggest some degree of accumulation when change is nearly constant (e.g., McMurray, 2007). In the context of this study, where employees have been subjected to varied types of organizational changes, we expect to observe more stress and uncertainty to arise from multiple organizational changes, in turn triggering increased centralization and formalization on part of the managerial level and decreasing support for novel ideas by employees.

Based on the insights from IWB and threat-rigidity theory, we formulate the following hypothesis:

Hypothesis 1: Multiple organizational changes decrease managerial support for IWB.

Data

Data and Setting

Our analyses make use of the 2014 wave of the APS employee census. The employee census was designed to measure key issues such as employee engagement, leadership, health and well-being, job satisfaction, and general impressions of the APS. It was administered to all available APS employees, recorded in the Australian Public Service Employment Database (APSED), providing a comprehensive view of the APS and ensuring that no eligible respondents were omitted from the survey sample (removing sampling bias and reducing sample error). The total targeted population equaled 151,792 out of which 99,392 employees responded, leading to a response rate of 68%. The methodology used reduced sampling bias and minimized sample error by ensuring that all APS employees had been invited to participate. Some employees who had only recently entered the APS, however, were not recorded in APSED at the time the invitations were issued. The omission of these employees or those who had recently changed agencies may have introduced some sampling errors. Agencies were, however, given the opportunity to review or provide their own email lists and were encouraged to contact the organization in charge of the census if they did not receive copies. Nonsampling bias was checked by comparing the survey sample against the overall APS population on gender, classification, location, and employment category. No significant difference could be detected.¹ Analyses do, given item nonresponse, rely on a representative² subsample hereof, consisting of 77,885 employees.

The Australian Public Service Commission (APSC; 2014), competent for the management and monitoring of the APS's general workforce and human resource (HR) policies, noted in its 2013-2014 State of the Service Report that organizational change has become an increasingly pervasive feature in APS organizations over the years. Among the change initiatives undertaken within the APS in the year before the survey was held, the amendments to the Administrative Arrangements Order of September 18, 2013 (coinciding with the new Abbott ministry being sworn in and following parliamentary elections), stand out. These resulted in widespread structural and functional change for dozens of organizations, affecting more than 13,000 employees in the process (APSC, 2014). This reform, combined with incidental changes in various APS organizations, has resulted in roughly 74% of APS employee survey respondents experiencing at least one form of organizational change in the year before the survey was held. At the same time, the APSC (2015) has repeatedly noted the importance attached by the majority of APS agencies to innovative ideas and strategies, and their commitment to increase support for innovation within their organizations. Thus, not only does the APS form a suitable setting for our study, the results are also relevant to APS practitioners attempting to foster and encourage innovative climates.

Variables

Managerial support for IWB is measured by gauging the perception of employees regarding the support they would receive trying a new idea. Employees were asked to

indicate their level of agreement with the following statement: *I believe I would be supported if I tried a new idea, even if it may not work* (five answer categories: 1 = *strongly agree*; 2 = *agree*; 3 = *neither agree nor disagree*; 4 = *disagree*; 5 = *strongly disagree*). This measure thus explicitly captures a specific but crucial stage in the innovation process, which refers to the phase of finding support for new ideas. Expectancy theory of motivation states employees' motivation increases as their expectation rises that their efforts will result in desired outcomes or rewards (Bandura, 1986). The extent to which one expects to be supported, thus, will also affect one's desire to be creative and look for new ideas in the first place.

The organizational changes endured are based on the following question: *Which of the following changes impacted your work group in the last 12 months?* Respondents were given 11 types of changes whereby they could select all that applied (see Table 1 for an overview). This question allowed us to calculate the number of changes as perceived by employees in the previous year, leading to an indicator for the frequency of changes in the last year. Thus, this study does not rely on an objective measure of organizational changes, but rather relies on a perceptual measure. As our interest is not on attitudes concerning these changes but merely on recording whether changes happened, we believe this choice is defensible, in particular given the time span of 1 year.

Figure 1 provides an overview of the distribution of the number of organizational changes respondents experienced during the year prior to the survey. As mentioned earlier, this figure shows that roughly 74% of respondents experienced at least one change in the year before the survey was held. Moreover, 64% of respondents declared to have endured two or more changes. Some respondents even report to have experienced 10 organizational changes in 12 months. This figure strongly supports the claim that public sector organizations are far from the epitome of stability but instead are likely to experience fast-paced changes.

We also include a wide range of variables that control for alternative explanations. These variables are taken from private sector literature on antecedents for IWB regarding characteristics at the individual level, organizational climate, and social/group context (Bysted & Hansen, 2015; Scott & Bruce, 1994; Yuan & Woodman, 2010). The first set of control variables reflects objective individual characteristics such as age, gender, position, tenure within the organization, tenure within the APS in general, education, and full-time or part-time employment. Apart from these objective data, we also add information on the perception of the ability to raise opinions that differ from the one of colleagues and supervisors. Moreover, information is included on the focus on quality and whether or not colleagues work together. Finally, information is added on the size and type of the organization. Table 1 shows descriptive statistics with a reference to the precise survey questions that were used.

The linear correlation analysis among regressors is reported in Table 2. Not surprisingly, there appears to be a strong correlation between managerial support for IWB and the possibility to voice opinions to colleagues and supervisors. Consequently, we test for multicollinearity using the variance inflation factor (VIF). The mean VIF equals 1.54 whereby, as expected, the highest VIFs exist for voicing opinion to colleagues (2.49) and voicing to supervisor (2.39). These values indicate that no

Table 1. Descriptive Statistics.

Variables	Survey question	Description	M	SD
Managerial support for IWB	q62g	I believe I would be supported if I tried a new idea, even if it may not work (5: strongly disagree to 1: strongly agree)	2.40389	0.9794629
Possible workplace changes	q26	Respondents could select multiple changes		
Change in physical workplace	q26_1	0: no change, 1: change	0.2349361	0.4239616
Machinery of government change	q26_2	0: no change, 1: change	0.2186814	0.4133546
Relocation to a new city	q26_3	0: no change, 1: change	0.0095397	0.097205
Structural change	q26_4	0: no change, 1: change	0.4202221	0.4935976
Functional change	q26_5	0: no change, 1: change	0.3101496	0.4625576
Change in work priorities	q26_6	0: no change, 1: change	0.335944	0.4723225
Decrease in staffing numbers	q26_7	0: no change, 1: change	0.4951146	0.4999793
Increase in staffing numbers	q26_8	0: no change, 1: change	0.0743404	0.2623257
Change in leadership	q26_9	0: no change, 1: change	0.2614239	0.4394132
Change in supervisor	q26_10	0: no change, 1: change	0.3379085	0.4730002
Other kind of change	q26_11	0: no change, 1: change	0.0677024	0.2512361
Change sequence		Frequency based on q26	2.765963	2.325536
Gender	q1	1: male, 2: female	1.570342	0.4950304
Age	q2	1: <30 years, 2: 30-44 years, 3: 45-59 years, 4: ≥60 years	2.38413	0.7824454
Classification level	q6	1: Trainee/Grad/APS1-6/, 2: SES	1.323531	0.5093674
APS tenure	q33	1: <1 year, 2: 1-5 years, 3: ≥5 years	2.780035	0.4142255
Organization tenure	q9	1: <1 year, 2: 1-5 years, 3: ≥5 years	2.570919	0.6220357
Education	q10	1: year 12 or lower, 2: completed vocational qualification, 3: completed tertiary qualification	2.376209	0.8743378
Full-time	q31	1: full-time, 2: part-time/casual	1.13353	0.340149
Location	q3_	Where is your workplace? 1: Australian Capital Territory, 2: other	1.593054	0.4912678
Size	Size	1: <251 FTE, 2: 251-1,000 FTE, 3: >1,000	5.64359	1.068379
Type	Cluster	1: specialist, 2: regulatory, 3: policy, 4: smaller operational, 5: larger operational	4.146177	1.273945
Focus on improving quality	q62b	Employees in my team believe that improving the quality of our work is our responsibility (1: strongly disagree to 5: strongly agree)	3.770662	0.7429117
Working together of improve	q62e	The people in my work group work together to improve the service we provide (1: strongly disagree to 5: strongly agree)	3.784939	0.8194873
Voicing opinion (colleagues)	q62h	In my work group I feel comfortable to voice an opinion that differs from my colleagues (1: strongly disagree to 5: strongly agree)	3.877935	0.8907399
Voicing opinion (supervisors)	q62i	I my work group, we are allowed to voice an opinion that differs from our supervisor (1: strongly disagree to 5: strongly agree)	3.86665	0.8885786

Note. IWB = innovative work behavior; APS = Australian Public Service; SES = Senior Executive Service; FTE = Full Time Equivalents.

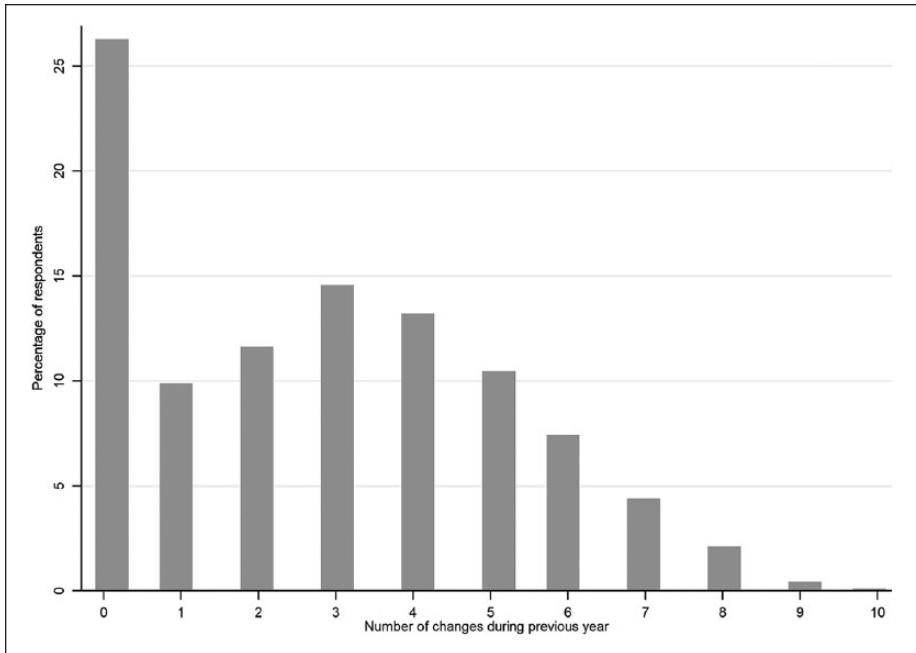


Figure 1. Number of changes experienced by respondents.

collinearity exists between the variables or, in other words, that the shared variance of the variables is rather low and their discriminant validity is potentially high.

Method and Results

As the dependent variable managerial support for IWB is measured on an ordinal scale (1-5), we model an ordered probit model. Even though the ordered probit model allows to deal with the ordinal scale of our dependent variable, the extremely large sample (nearly 80,000 observations) poses a challenge. With such large samples, estimations based on small-sample statistical interferences can be ineffective at best and misleading at worst. An extremely large sample will make the standard error extremely small, so that even minuscule distances between the estimate and the null hypothesis become statistically significant (Lin, Lucas, & Shmeli, 2011). Consequently, and as discussed by Lin et al. (2011), conclusions based on significance and sign alone, claiming that the null hypothesis is rejected, are meaningless unless interpreted in light of the actual magnitude of the effect size. To alleviate the impact of our large n sample on the working of our model, we repeatedly (500 times) draw random samples of 10% of our total data on which we each time re-run our ordered probit model. In other words, the coefficient and p values are computed 500 times for a sample of 10% of the original sample size of 77,885 observations. By doing so, we reduce the possible large sample impact

Table 2. Correlation Matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Risk-adversity	1.0000															
Organization change frequency	.0672	1.0000														
Gender	-.0073	.0249	1.0000													
Age	.0255	-.0136	-.0754	1.0000												
Classification level	-.0860	.0935	-.1332	.1696	1.0000											
APS tenure	.0329	.0495	.0153	.4052	.1886	1.0000										
Organization tenure	.0395	-.0326	-.0066	.3150	.0573	.6361	1.0000									
Education	-.0106	.0582	-.1227	-.0906	.2761	-.1018	-.1109	1.0000								
Full-time	.0179	-.0274	.2360	-.0216	-.0714	.0916	.0849	-.0569	1.0000							
Location	.0678	-.1368	.0181	.1389	-.2756	.0885	.1956	-.1406	.0494	1.0000						
Size	.0220	.0639	-.0162	.0186	-.0632	.0953	.1217	-.0732	-.0015	.0885	1.0000					
Type	.0500	-.0471	-.0166	.0966	-.1605	.1259	.02180	-.1702	-.0095	.3396	.5394	1.0000				
Focus on improving quality	-.2984	-.0238	-.0370	.0049	.1454	-.0242	-.0429	.0828	-.0173	-.1044	-.0344	-.0802	1.0000			
Working together to improve	.4491	-.0364	-.0011	.0177	.1040	-.0225	-.0323	.0456	-.0062	-.0706	-.0391	-.0713	.4977	1.0000		
Voicing opinion (colleagues)	.5697	-.0471	-.0440	-.0217	.1259	-.0156	-.0200	.0495	-.0139	-.0529	-.0266	-.0540	.3135	.4593	1.0000	
Voicing opinion (supervisors)	.6109	-.0551	-.0195	-.0523	.1021	-.0447	-.0468	.0532	-.0074	-.0720	-.0258	-.0666	.2940	.4276	.7338	1.0000

Note. Mean VIF equals 1.54 whereby the highest VIF equals 2.49. APS = Australian Public Service; VIF = variance inflation factor.

while safe guarding the robustness of our results. The average coefficients, t , and p values are presented in Table 3.

The average McFadden R^2 for our models equals .214 and the adjusted McFadden R^2 .213. Moreover, a likelihood ratio (LR) test indicates that models with the variable on the frequency of organizational changes have a significantly better fit compared to models without this variable, $\chi^2(1) = 113.72^{***}$. The average p values are smaller than 5% for the sequences of changes (change sequence), gender, education, focus on quality improvement, working together, and the ability to voice a different opinion to colleagues and supervisors. When also examining the corresponding coefficients, we find that a higher education leads to a higher likelihood to perceiving a lack of managerial support for IWB. Being female, a focus on improving quality, working together, and the ability to voice divergent opinions to colleagues and supervisors increases the perceived likelihood to receive support for IWB. To understand the impact of sequences of organizational changes on the perception of managerial support for IWB, we calculate and visualize predictive margins in Figure 2.

In the above figure, each possible answer category of our dependent variable (*I believe I would be supported if I tried a new idea, even if it may not work*—1 = *strongly agree* to 5 = *strongly disagree*) is presented. For very high and high degree of perceived managerial support for IWB (“strongly agree” or “agree”), we notice that the predictive margins decrease when the number of changes respondents experience increase. In case of a very high degree of managerial support, we notice that the predictive margins steadily decrease from .15 to .12 when the number of changes respondents experience during the year increase from 0 to 10. A similar trend can be observed for a low degree of managerial support for IWB (from .495 to .475). In other words, the more changes respondents experience, the smaller the likelihood that they perceive a high degree of managerial support for IWB. The opposite occurs for a medium, small, and very small degree of managerial support for IWB. Here, the predictive margins increase with the number of changes respondents experience (from .22 to .25 for medium degree, from .095 to .11 for small degree, and from .04 to .05 for very small degree of managerial support for IWB). This supports our argument that more organizational changes in a short time span cause threaten to managerial support for IWB.

Discussion

The results presented in the previous section provide substantial support for our expectation that multiple organizational changes decrease managerial support for IWB. Importantly, our results imply that the threat-rigidity effect and its consequences for such managerial support are determined not only by discrete organizational changes, but also by their accumulation (Amabile & Conti, 1999; Marks & Mirvis, 1997; Rafferty & Griffin, 2006; Wanous, Reichers, & Austin, 2000).

In accordance with earlier studies, our observation that support for IWB is reduced in organizations that experienced changes more frequently provides indirect and tentative support that during the turmoil generated by frequent changes, the sustained

Table 3. Ordered Probit Results for 500 Simulations on Random Samples of 77,885 Observations.

Variables	β			t values			p values		
	M	SD	Minimum	Maximum	M	SD	Minimum	SD	Maximum
Change sequence (number of changes)	.0190212	.0057014	.002641	.0334472	3.41103	1.022202	0.4773123	0.0658106	1.35e-09
Gender	-.0844229	.0252468	-.1517693	-.0221594	-3.148825	0.9411973	-5.63732	.0491938	1.57e-08
Age	.0106273	.0169526	-.0618034	.0529052	0.5813485	0.9280204	-3.387985	.3004084	.0007041
Classification level	-.0350782	.0278297	-.1177035	.0439421	-1.221843	0.9689719	-4.048534	.2888678	.0000515
APS tenure	.0157549	.0420071	-.1056263	.1320907	0.3711144	0.9888223	-2.468206	.2911962	.0021629
Organization tenure	.0273022	.0253779	-.0478305	.1032017	0.9980917	0.9265574	-1.737836	.3026165	.0001738
Education	.0552913	.014781	.0188007	.1024393	3.558329	0.9489192	1.220326	.000644	0
Full-time	.0810675	.0352233	-.0276467	.1749855	2.100896	0.9144588	-0.7073388	.1170363	.370e-06
Location	.0525774	.0274579	-.028591	.1243728	1.793697	0.9360074	-0.9787686	.2216935	.0000229
Size	-.0021046	.0140299	-.0483548	.0468073	-0.1478693	0.9786085	-3.308619	.2843202	.0009376
Type	-.0062023	.0122345	-.0442604	.0286806	-0.4821635	0.9503517	-3.489693	.3016605	.0004836
Focus on improving quality	-.1013053	.0213258	-.1705806	-.0498887	-5.066617	1.065902	-8.434342	.000252	0
Working together to improve	-.3149866	.0230919	-.3813558	-.259205	-16.26835	1.18795	-19.81306	0	0
Voicing opinion (colleagues)	-.3306398	.0240767	-.4060541	-.2614715	-15.52605	1.118602	-19.1191	0	0
Voicing opinion (supervisors)	-.591112	.0257256	-.6713041	-.5172516	-27.60128	1.214927	-31.38556	0	0

Note. Results of 500 simulations on a 10% sample of 77,885 observations. Adding change sequence to the model significantly improved our models—LR test: $\chi^2(1) = 113.72^{***}$. APS = Australian Public Service; LR = likelihood ratio. ***significant at 1% level.

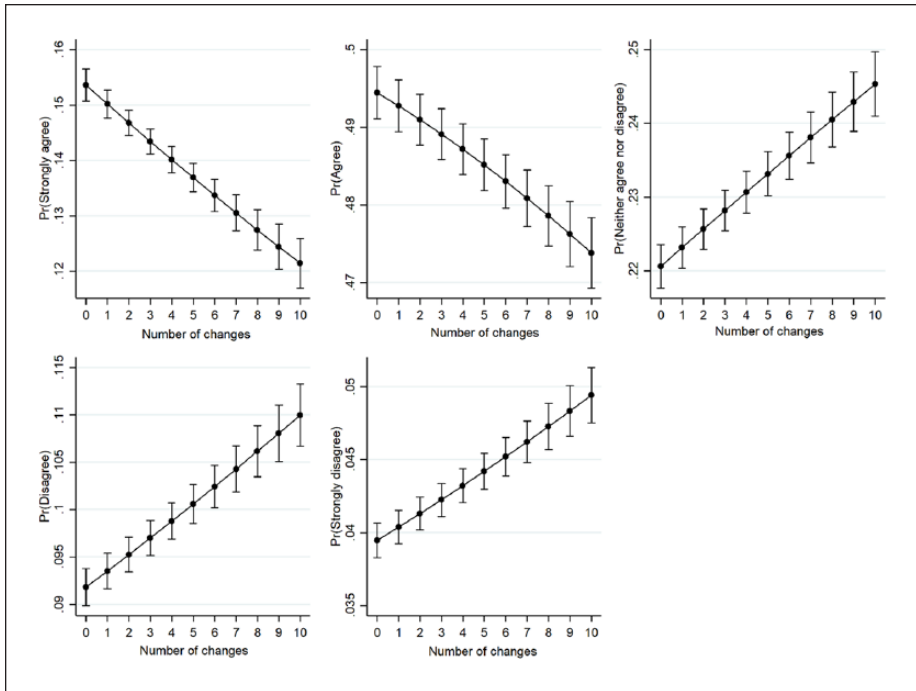


Figure 2. Predictive margins “change frequency (number of changes)” and “managerial support for innovative work behavior (IWB).”

perception of uncertainty and urgency of top managers may gradually cement the role of in-groups and heuristics in decision-making (Wynen et al., 2017). In turn, this may reduce the readiness of organizational decision-makers to pick up new informational cues and allow sufficient employee participation (Daly et al., 2011; Muurlink et al., 2012). Thus, a lack of a supportive management may create an environment in which employees no longer perceive IWB as rewarding (Niesen et al., 2014). Our findings lend support to recent studies pointing at the unintended effects of multiple organizational changes on individuals’ well-being (Moore et al., 2004), feelings of uncertainty, threat and harm, turnover intentions (Rafferty & Griffin, 2006; Rafferty & Restubog, 2017), and innovation (Wynen et al., 2017). Moreover, it is notable that—while dedicated research into the effect of change on innovativeness remains scant—similar observations have tentatively been reported in the HRM reform literature. Battaglio (2010), for instance, notes that substantial amounts of public sector employees perceive the shift toward employment-at-will to discourage policy innovation. It is also notable that this effect runs counter to many of the aims of reform doctrines such as New Public Management (NPM) and post-NPM—both important sources of organizational change in the public sector. Even though NPM reforms seek to foster increased organizational flexibility through the introduction of private sector practices and

post-NPM reforms stress horizontal collaboration and collaborative innovation (Lindsay, Findlay, McQuarrie, & Bennie, 2017), it seems that accumulations of reforms implementing such doctrines may have counterproductive results (Wynen et al., 2017).

At first glance, our findings run counter a long line of thought in the organizational change literature, which points at organizational change as a driver of organizational innovations (Burns & Stalker, 1961; Kanter, 1983). Similarly, our findings are seemingly opposed to articles that suggest that changes in work content result in the adoption of more flexible HRM arrangements (Lonti & Verma, 2003). To be clear, our results do not suggest that organizational change is bad for innovation per se. Yet, our results do imply that continued organizational turmoil through multiple organizational changes keeps organizations in a rigid state (Rafferty & Restubog, 2010; Staw et al., 1981). Such a situation may produce a seeming paradox in which organizational changes, while often intended to make organizations more flexible and adaptable, may actually impede internal adaptation on the micro-level through a lack of support for IWB (e.g., Bommer & Jalajas, 1999; Wanous et al., 2000; Wynen et al., 2017). That said, the negative relation between organizational change and managerial support for IWB is linear, which means that the negative effects already show from one organizational change.

A tentative explanation for this linear, rather than nonlinear, relation might be that this study focuses on short-term effects within 1 year of the implemented change; that is, the positive effects might only be visible at a later point in time. These findings suggest that future research should look more into the temporal dynamics of changes, in particular when changes accumulate. While this study focused on the effect of organizational changes within the last year under the assumption that these changes are still fresh in the memory of organizational members and often ongoing in terms of implementation, future studies should aim to see how long it takes for changes to loosen their threat-rigidity effects within organizations.

The observation that multiple organizational changes produce cumulative effects also runs counter to the current tendency in both the academic literature and policy-making circles to consider such changes as isolated events (Moore et al., 2004; Wanous et al., 2000), and suggests that a more holistic view of the long-term processes operating within organizations is necessary (Pollitt, 2007). Given that individual-level innovation has been argued to be an antecedent of organizational innovation (Bysted & Hansen, 2015; Yuan & Woodman, 2010), as well as a series of other positive outcomes (Bos-Nehles et al., 2017; De Jong & Den Hartog, 2010), accurately predicting the cumulative effects of organizational changes—and responding with appropriate forms of support—may aid in keeping the organization as adaptable as possible during a reform process.

In this context, it is important to re-emphasize that, by the APC's own estimates, organizational change is frequent (and becoming increasingly prevalent) within the APS (APSC, 2014). Thus, the amount of situations in which the accumulation of multiple structural reforms may impede IWB is likely increasing. Our results are particularly worrisome given that a majority of APS organizations seek to promote the

generation of innovative ideas and strategies (APSC, 2014). Moreover, given that high and increasing rates of organizational change are not exclusive to Australia, but have also been detected in other Organisation for Economic Co-operation and Development (OECD) states (MacCarthaigh, 2012; McMurray, 2007; Pollitt, 2007), suggests that similar effects may occur in other settings.

Simultaneously, recognizing that organizational changes may reduce managerial support for IWB provides an opportunity for improved change management during the implementation of a future organizational change, as the organization can anticipate the need for additional support for employee initiatives during the event. This may include, for instance, additional communication and support from managers to enhance the perception that discussing problems and new ideas is encouraged, additional freedom given to employees to suggest and initiate new projects (e.g., Bos-Nehles et al., 2017; De Vries et al., 2016; De Vries et al., 2018). These suggestions receive some support from the results for our own control variables, as those measuring the degree to which respondents feel able to voice opinions to, respectively, superiors and coworkers both have a strongly significant positive effect on perceived managerial support for IWB. Accordingly, HR practices that encourage involvement, cooperation, training, autonomy, and empowerment (e.g., high-involvement work systems [HIWS]) may mitigate some of the detrimental effects of repeated organizational change (Boselie, Paauwe, & Richardson, 2003; Boxall & Macky, 2009). However, we caution that organizational change toward such HR practices should itself be undertaken with care. When occurring repeatedly or coinciding with other organizational changes, such HR changes are arguably also likely to produce the effects observed in our data; that is, exactly the effects that the shift to HIWS practices was intended to counter.

Being aware of the side effects of rapid change also offers an opportunity for policy makers in the APS and elsewhere to analyze whether a given rate of change is sustainable, or whether the organization would benefit from a relatively stable period in which the rate of organizational change is reduced. In this context, we also point to research that has indicated that, while detrimental change side effects may accumulate when multiple changes coincide, many of these side effects seem to gradually dissipate when the organization enters more stable waters (Moore et al., 2004; Seo & Hill, 2005). If this temporal dynamic holds for the effects on managerial support for IWB, this would offer a way out of the apparent paradox that change seems to impede innovation, as it would allow the beneficial effects of a set of changes to manifest while the detrimental side effects on support for IWB would gradually be reduced. However, as was mentioned earlier, additional research is necessary to verify whether such a “cooling down period” would be effective support for IWB.

Finally, some important reservations to the potentially negative effect of multiple organizational changes need to be formulated. First, not all organizational changes are intended to foster innovation, nor are all organizations designed with innovation in mind (Mintzberg, 1983). Second, one might argue that managers in charge of turbulent organizations—that is, that underwent multiple organizational changes in the previous year—are right to put a brake on additional innovation and change (which might lead

to even more stress and uncertainty). While we recognize the possibility that the negative observed effect of multiple changes on managerial support for IWB might be warranted, at the very least, our results indicate that when innovativeness is an explicit goal of organizational change, or when changes are implemented in organizational contexts that value innovativeness and flexibility, the effects observed in this study may be particularly detrimental.

Conclusion

This article set out to investigate how organizational changes produce a cumulative effect on managerial support for IWB. Analyzing a sample of 77,885 civil servants, our results show that support for IWB is detrimentally affected by the repeated implementation of organizational changes. The insight that such changes are not independent interventions, but instead form an integral part of a wider organizational history, will hopefully inspire further research into the processes that determine features of an organization's functioning and performance.

Future research could focus on the effect of multiple organizational changes on other outcome variables, such as employee well-being, turnover, performance and culture, and organizational innovation (while we see individual innovation as an antecedent of organizational innovation, our data did not allow for an explicit test of this assumption). Also, while this study was specifically interested in the cumulative effect of multiple changes to explore the potential threat-rigidity effects of such repeated exposure to change, future studies could entangle how different constellations of organizational changes affect various outcome variables, including managerial support for IWB. In addition, qualitative research into the working of the threat-rigidity effect in various levels of the organization seems required to tease out the details of this mechanism. Although the analysis included several methodological improvements over previous research in the field, notably the measurement of multiple organizational changes and usage of simulations to reduce large sample bias, the article remains subject to some limitations, most importantly our usage of cross-sectional data. Future quantitative research should therefore incorporate panel data, to address the possible presence of reverse causality. Moreover, qualitative data investigating how threat-rigidity relates to organizational changes and IWB as an intermediate mechanism would form an interesting supplement to the analyses presented here. Qualitative analyses would be able to capture the dynamics of organizations experiencing multiple contemporaneous changes. As such, they could offer insight on both the processes generating organizational rigidity (Daly et al., 2011) and the effects of such rigidity on individual-level perceptions of managerial support for IWB.

For practitioners and policy makers, the results presented here should serve as a warning that their plans for organizational changes may be influenced to a considerable degree by earlier changes, and that imposing new changes may have wider and more persistent detrimental side effects than is often anticipated. Indeed, when organizations seek to foster a degree of IWB throughout their ranks,

it seems that frequent and rapid imposition of organizational changes can become too much of a good thing.

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Notes

1. This part comes from the State of the Service Report 2013-2014. Further information on the survey methodology is available at <http://www.apsc.gov.au/publications-and-media/current-publications/state-of-the-service/state-of-the-service-2013-14/appendices/survey-methodologies>
2. The estimation subsample used in the regression analyses has been compared with the representative full sample of employees. Values were similar, suggesting that missing values were randomly distributed, and that the observations used to estimate the regressions constituted a representative subsample of all the employees who were originally included in the survey.

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